

**IN THE SPECIFICATION:**

**Please replace the paragraph starting on page 8, line 10 “Preferably, as shown in...” and ending on Page 9, line 2 “... from an external source.” with the following amended paragraph:**

“Preferably, as shown in Figure 2, the implantable logic circuit 10 is implemented on a single integrated circuit, utilizing very large scale integrated (VLSI) circuit architecture, however, those of ordinary skill in the art will recognize that a wide variety of logic circuit architectures may be employed to build an implantable logic circuit having the desired functionality of the present invention. The implantable logic circuit 10 is encased in a matrix suitable for implantation in a living organism, and includes an input interface 12 through which analog signals from one or more implantable electrodes are received. Signals received at the interface 12 are passed to an amplifier circuit 14 and converted to sampled digital format in an analog-to-digital converter circuit 16 which functions as a sampling circuit 18. The resulting digital signals are then ~~routed to a sampling circuit 18 and~~ conveyed to a transceiver circuit 20 for communication via a wireless interface 22 to the external signal processor 100. Power for the amplifier circuit 14, A/D converter circuit 16, ~~sampling circuit 18~~, and transceiver circuit 20 is stored in a capacitor circuit 24, which includes an integrated antenna for receiving wireless power transmissions from an external source.”

**Please replace the paragraph starting on page 9, line 3 “As shown in Figure 3 ...” and ending on Page 9, line 17 “... via the wireless link.” with the following amended paragraph:**

"As shown in Figure 3, the signal sampling carried by the ~~sampling~~ A/D converter circuit ~~18~~ 16 out on the implantable logic circuit 10 requires that an original analog signal 30 received through the implantable logic circuit input interface 12 be amplified at circuit 14 and converted to a digital signal 32 in the A/D converter circuit ~~16~~. Next, 16 using 1-bit sigma-delta ( $\Sigma$ - $\Delta$ ) sampling, ~~the digital signal is converted into a 1-bit data stream 34 by the sampling circuit 18,~~ wherein a "1" or high signal indicates an increase in signal amplitude, and a "0" or low signal indicated a decrease in signal amplitude. The resulting 1-bit data stream 34 is communicated via the wireless communications link 22 to the external signal processor 100, where it is filtered and processed as required, depending upon the particular type of brain activity signal. Processing is preferably performed in the external signal processor 100 to maintain the power consumption of the implantable logic circuit 10 at a reduced level which can be adequately supplied via the wireless link."